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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

LEGASSE JR, FRANCIS M

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2878

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/593,728	Applicant(s) DIEDERICH, CARSTEN	
	Examiner FRANCIS M. LEGASSE JR	Art Unit 2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-38 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 21-38 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/20/06; 4/24/08</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Status of Claims

Claims 1-20 are cancelled.

Claims 21-38 are pending.

Title

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 20 September 2006 and 24 April 2008 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner. However, the non-patent literature of IDS, dated 24 April 2008, is not considered because there is no publication date.

Claim Objections

Claim 36 is objected to because of the following informalities: on line 1, Applicant recites "said detections" and it should recite "said detectors". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 22 and 38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 22, Applicant recites, "wherein said control device is usable to switch said light source on simultaneously with said detection exposure time". This statement contradicts that of claim 21. In particular, Applicant, recites, "a second time sum set by said control device and including said detection device exposure time length, said second time sum being greater than said first time sum, said light source switched-on time length being within said detection device exposure time", on lines 21-24. This is unclear to the examiner because Applicant specifically requires that the "switched-on time be within the detection device exposure" but now claims that it can occur outside of the exposure time. Applicant is required to particularly point out and distinctly claim the subject matter regarded as the invention.

Regarding claim 38, Applicant recites, "wherein at least one light source of said illumination arrangement emits a constant amount of light". This statement contradicts that of claim 21. Applicant requires that the "switched-on time be with the detection device exposure" and thus, the light source can not remain on the entire time. Applicant is required to particularly point out and distinctly claim the subject matter regarded as the invention.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 21, 23, 28 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Juvinal (US Patent No. 6,175,107 B1) in view of Hinata (US Patent No. 6,480,280 B1).

Regarding claim 21, Juvinal (*figures 1, 2 and 6, reproduced below*) disclose an optical system adapted to generate an illuminated pattern on a surface of a material comprising:

- material support means (40) supporting said material (12) for movement (conveyor drive, rotation 30) relative to said illuminated pattern at a variable transport speed;
- an illumination arrangement including a plurality of light sources (16, 17), said illumination arrangement being usable to generate said illuminated pattern;
- a detection device (24) usable to detect light emitted by said light sources (16, 17);
- a control device (34) usable to operate selectively one (14 or 22) of light sources in a pulsed manner;
- a light source chronological behavior of at least one light source (14) of said plurality of light sources (14, 22), said light source chronological behavior including a light source switched-on time length (pulse of 14) and a light source delay time (time delay) length immediately preceding said light source switched-on time (pulse of 14);

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- a detection device chronological behavior of said detection device including a detection device exposure time length (frame 1) and a detection device off time length immediately following said exposure time, said off time being set as a function of said variable transport speed, said light source switched-on time (pulse of 14) length being synchronized with said detection device exposure time length (frame 1);
- a first time sum set by said control device (34) and including said light source delay time length (time delay) and said light source switched-on time length (pulse of 14); and
- a second time sum set by said control device (34) and including said detection device exposure time length (frame 1), said second time sum being greater than said first time sum (width of frame 1 greater than width of (time delay plus pulse)), said light source switched-on time (pulse of 14) length being within said detection device exposure time length (frame 1).

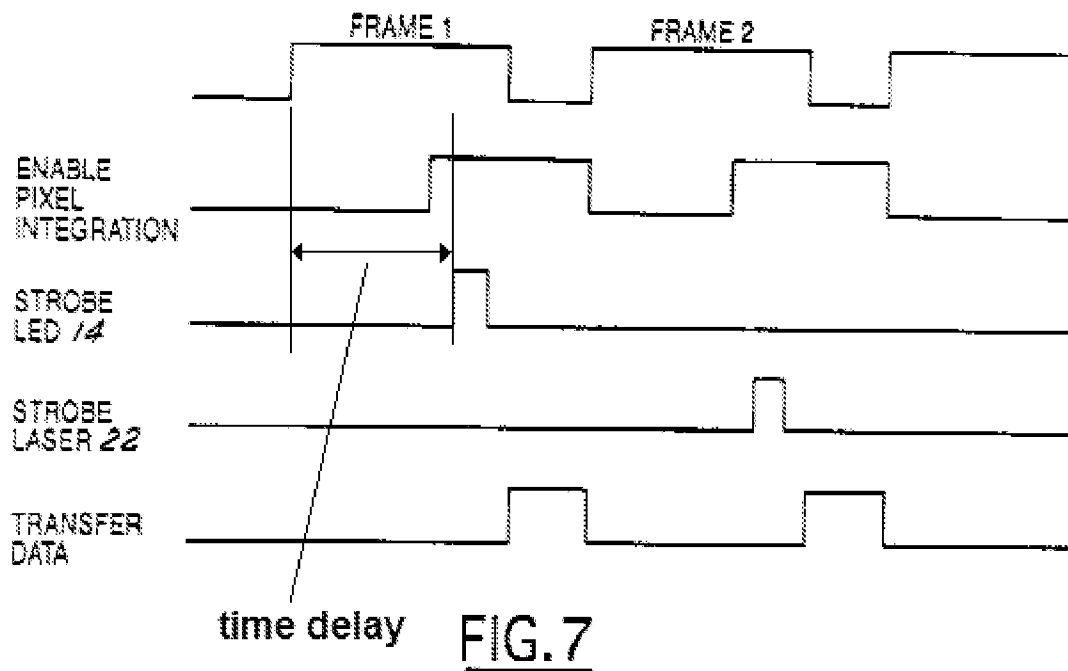
Juvinall fails to explicitly teach that a group of said plurality of light sources is operated by said control device.

Hinata (*figures 2 and 4*) teaches controlling (22, 23) a group (11) of a plurality of light sources (col. 7, lines 20-30).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the group of the plurality of light sources of Hinata in combination with the system of Juvinall because it increases the amount of light

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reflecting off the bottle neck thus improving the quality of the image obtained by the detector.



Reproduced from US Patent 6,175,107 B1

Regarding claim 23, Juvinall as modified by Hinata (*Hinata: figure 4*) disclose an optical system adapted to generate an illuminated pattern on a surface of a material further comprising an electrical current supply (supply lines) assigned to said illumination arrangement and being controlled by said control device (22,23)

Regarding claim 28, Juvinall as modified by Hinata (*Hinata: figure 8*) disclose an optical system adapted to generate an illuminated pattern on a surface of a material further including an illuminated strip (3) on said material (8), said illuminated strip (3) having a strip width and strip length and forming said illuminated pattern.

Regarding claim 31, Juvinall as modified by Hinata (*Juvinall: figure 1*) disclose an optical system adapted to generate an illuminated pattern on a surface of a material controlling the time when the light source is turned on (*figure 7*) but fails to teach that the control device varies the switched-on time length as a function of optical properties of said material to be illuminated.

It is common knowledge in the art to vary the length a light source is on depending on the material being illuminated.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a specific on time length in the system of Juvinall as modified by Hinata because it will ensure that the proper amount of light is impinged on the material, thus improving the quality of the image detected.

Claims 21, 25-27, 29-30 and 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Juvinall in view of Lindner (US 2001/0054680 A1).

Regarding claim 21, Juvinall (*figures 1, 2 and 6, reproduced above*) disclose an optical system adapted to generate an illuminated pattern on a surface of a material comprising:

- material support means (40) supporting said material (12) for movement (conveyor drive, rotation 30) relative to said illuminated pattern at a variable transport speed;
- an illumination arrangement including a plurality of light sources (16, 17), said illumination arrangement being usable to generate said illuminated pattern;

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- a detection device (24) usable to detect light emitted by said light sources (16, 17);
- a control device (34) usable to operate selectively one (14 or 22) of light sources in a pulsed manner;
- a light source chronological behavior of at least one light source (14) of said plurality of light sources (14, 22), said light source chronological behavior including a light source switched-on time length (pulse of 14) and a light source delay time (time delay) length immediately preceding said light source switched-on time (pulse of 14);
- a detection device chronological behavior of said detection device including a detection device exposure time length (frame 1) and a detection device off time length immediately following said exposure time, said off time being set as a function of said variable transport speed, said light source switched-on time (pulse of 14) length being synchronized with said detection device exposure time length (frame 1);
- a first time sum set by said control device (34) and including said light source delay time length (time delay) and said light source switched-on time length (pulse of 14); and
- a second time sum set by said control device (34) and including said detection device exposure time length (frame 1), said second time sum being greater than said first time sum (width of frame 1 greater than width of (time

delay plus pulse)), said light source switched-on time (pulse of 14) length being within said detection device exposure time length (frame 1).

Juvinall fails to explicitly teach that a group of said plurality of light sources is operated by said control device.

Lindner (*figure 1*) teaches controlling (C) a group (L, single column) of a plurality of light sources ([0027]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the group of the plurality of light sources of Lindner in combination with the system of Juvinall because it increases the amount of light reflecting off the bottle neck thus improving the quality of the image obtained by the detector.

Regarding claim 25, Juvinall as modified by Lindner (*Lindner: figure 1*) disclose an optical system adapted to generate an illuminated pattern on a surface of a material further including several groups (vertical columns) of said light sources (L) in said illumination arrangement (D).

Regarding claim 26, Juvinall as modified by Lindner (*Lindner: figure 1*) disclose an optical system adapted to generate an illuminated pattern on a surface of a material further including at least one electrical current source (individual lines to the columns of LEDs) controlled by said control device (C) and assigned to each of said several groups (vertical columns) of said several groups of said light sources (L).

Regarding claim 27, Juvinall as modified by Lindner (*Lindner: figure 1*) disclose an optical system adapted to generate an illuminated pattern on a surface of a material

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wherein each said electrical current source is a constant electrical current source [(0027)].

Note: Constant light source inherently implies a constant power source to the light sources.

Regarding claim 29, Juvinall as modified by Lindner (*Lindner: figure 1*) disclose an optical system adapted to generate an illuminated pattern on a surface of a material wherein said plurality of light sources (L) are arranged as lines (vertical) in said illumination arrangement (D) and further wherein a profile of an amount of light is produced by control (C) of said light sources (L) over a length of their arrangement as said lines ([0030]).

Regarding claim 30, Juvinall as modified by Lindner (*Lindner: figure 1*) disclose an optical system adapted to generate an illuminated pattern on a surface of a material wherein the profile is set along a length of an illuminated strip (constant light output through the array [0027]).

Regarding claim 35, Juvinall as modified by Lindner (*Lindner: figure 1*) disclose an optical system adapted to generate an illuminated pattern on a surface of a material wherein said detection device (11, CCD) includes a plurality of detectors arranged next to each other in the shape of lines.

Note: It is inherent that the individual pixels (or detectors) of a CCD are arranged in lines.

Regarding claim 36, Juvinall as modified by Lindner (*Lindner: figure 1*) disclose an optical system adapted to generate an illuminated pattern on a surface of a material

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wherein said detectors [sic] arranged next to each other in the shape of lines are arranged parallel to one of a length of an illuminated strip and a width of said material (B).

Regarding claim 37, Juvinal as modified by Lindner (*Lindner: figure 1*) disclose an optical system adapted to generate an illuminated pattern on a surface of a material wherein a spacing between said lines of detection and said direction of movement of said material (B), is orthogonal.

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Juvinal in view of Griesbeck (US Patent No. 5,591,899).

Regarding claim 24, Juvinal (*figures 1, 2 and 6, reproduced above*) disclose an optical system adapted to generate an illuminated pattern on a surface of a material comprising a detection device (24) usable to detect light emitted by said light sources (16, 17) but fails to teach that said detection device is a line-scanning camera.

Griesbeck teaches an optical system wherein said detection device (16) is a line-scanning camera (col. 3, lines 27-30).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the camera of Griesbeck in combination with the system of Juvinal because, in col. 1, lines 48-52, Griesbeck discloses that it will improve the reliability of a plastic or glass vessel inspection machine for detecting contaminated, damaged and leaking vessels at comparatively low cost and at a high production rate.

Claims 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Juvinal in view of Lindner, as applied to claim 21, and in further view of Cheang et al. (US Patent No. 7,012,382 B2, "Cheang", hereinafter).

Regarding claim 32, Juvinal as modified by Lindner (*Lindner: figure 1*) disclose an optical system adapted to generate an illuminated pattern on a surface of a material comprising a controller (C) controlling a group (L, single column) of a plurality of light sources ([0027]) but fails to teach further including a light sensor connected with said control device and useable to measure an amount of light emitted by said light sources.

Cheang (*figure 1*) teaches a light emitting diode system comprising a light sensor (114) connected with said control device (116) and useable to measure an amount of light emitted by said light sources (102, 104, 106).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the feedback system of Cheang in combination with the optical system of Juvinal as modified by Lindner because, in col.1, lines 39-41, Cheang discloses that the LED based light system can produce light of a desired quality for longer than current LED-based light systems.

Regarding claim 33, Juvinal as modified by Lindner and Cheang (*Cheang: figure 1*) disclose an optical system adapted to generate an illuminated pattern on a surface of a material wherein said control device (116) matches said switched-on time length of said light sources to a degradation behavior of said light sources (102, 104, 106) by use of said light sensor (114) (col. 3, lines 10-28).

Regarding claim 34, Juvinal as modified by Lindner and Cheang (*Cheang: figure 1*) disclose an optical system adapted to generate an illuminated pattern on a surface of a material wherein said control device (116) compensates for a reduction in an amount of light emitted by said light sources (102, 104, 106), as a result of their aging, by use of said measured signal from said light sensor (114) (col. 3, lines 5-30).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Francis M. LeGasse Jr whose telephone number is (571) 272-9798. The examiner can normally be reached on Monday through Thursday 7:00 am to 5:30 pm E.S.T.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Y. Epps can be reached on (571) 272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

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